

AMENDMENT TO THE CLAIMS

1. (Currently Amended) ~~Stent~~ A stent, comprising an SMP material for use in the non-vascular or vascular field.
2. (Currently Amended) ~~Stent~~ The stent as claimed in claim 1, wherein the stent comprises a basic structure of a material coated with an SMP material, preferably an SMP material with ~~one or two of the following: shapes~~ one shape in the memory ~~and two shapes in the memory~~.
3. (Currently Amended) ~~Stent~~ The stent as claimed in ~~one of the preceding~~ claims claim 1, further comprising additional additives selected ~~from~~ among x-ray contrast substances and medically effective compounds.
4. (Currently Amended) ~~Stent~~ The stent as claimed in ~~at least one of the preceding claims claim 1~~, wherein the SMP material is selected ~~from~~ among the following: polymer networks, thermoplastic SMP materials, composite materials or and blends.
5. (Currently Amended) ~~Stent~~ The stent as claimed in ~~one of the preceding~~ claims claim 1, wherein the SMP material is selected ~~from~~ among at least one of SMP materials in which the SMP effect is induced thermally, it is photo-induced, ~~and/or wherein the SMP material is biocompatible and/or the SMP material is~~ haemocompatible.
6. (Currently Amended) ~~Stent~~ The stent as claimed in ~~one of the preceding~~ claims claim 1, wherein the SMP material has at least one of the following: values for e-module of 0.5 to 50 MPa, and/or an elongation of break of 100% to 1200%, and/or a reset fixation of more than 90%, preferably more than 92%, even more preferably more than 95%, and particularly preferably more than 98%, and/or a reset ratio after five cycles in the thermo-mechanical experiment of more

than 90%, preferably more than 92%, even more preferably more than 95% and particularly preferably more than 98%.

7. (Currently Amended) ~~Stent~~ A stent as claimed in claim 5, wherein the network includes at least one of the following: caprolacton units, pentadecalacton units, ethyleneglycol units, propyleneglycol units, lactic acid units and/or glycol acid units.
8. (Currently Amended) ~~Stent~~ A stent as claimed in claim 6, wherein the network ~~consists of~~ includes cross linked caprolactonmacromonomers.
9. (Currently Amended) ~~Method~~ A method of manufacturing a stent ~~as claimed in one of the preceding claims~~ of a biodegradeable SMP material, comprising the processing of the SMP material to a stent by one of the following: extrusion methods, coating methods, metal casting methods ~~or~~ and spinning and weaving methods.
10. (Currently Amended) ~~Kit~~ A system comprising a stent ~~as claimed in at least one of claims 1 to 6~~ of a biodegradeable SMP material, and ~~additionally including~~ at least one of the following: a temperature-controlled balloon catheter and/or a balloon catheter with an optical fibre.
11. (Currently Amended) ~~Method~~ A method for the minimal invasive implantation of a stent, comprising the following steps:
 - ~~Placing~~ placing a stent of SMP material ~~as claimed in one of claims 1 to 7~~ onto a temperature-controlled balloon catheter or a balloon catheter with an optical fibre;_i
 - ~~Inserting~~ inserting the stent placed in this manner to the desired position;_i
 - ~~Heating~~ heating the stent by inserting a heating medium into the catheter;_i

- ~~Expanding~~ expanding the stent to carry out the programming of the SMP material;_i
- ~~Inserting~~ inserting a cooling medium into the catheter to fix the stent in the expanded condition or introduction of light (preferably UV light) of a suitable wavelength to fix the stent in the expanded state;_i
- ~~Removing~~ removing the balloon catheter.

12. (Currently Amended) ~~Method~~ A method for removing an implanted stent-as claimed in one of claims 1 to 7 of a biodegradable SMP material, comprising the following steps, preferably according to the implantation according to claim 10:

- ~~Inserting~~ inserting a balloon catheter into the ~~an~~ an implantation location;_i
- ~~Inserting~~ inserting a heat medium into the ~~a~~ a balloon catheter to accomplish the following: heat the stent ~~or and to introducing~~ introduce light of a suitable wavelength;_i
- ~~Activating~~ activating the shape memory effect by heating or the effect of light so that the stent is transferred from its temporary shape into the permanent shape, and
- ~~Removing~~ removing the balloon catheter, together with the stent.

13. (Currently Amended) ~~Method~~ The method as claimed in claim 11, further comprising the step of introduction of a cooling medium after introducing the heating medium to cool the stent in the permanent shape, before removing same.

14. (Currently Amended) ~~Method~~ A method for the minimal invasive implantation of a stent, wherein the stent is an SMP material with ~~two~~ a first shape ~~shapes~~ in the memory and a second shape in memory, comprising the following steps:

- ~~Placing~~ placing the stent according to one of claims 1 to 7 onto one of the following: a temperature-controlled balloon catheter ~~or and~~ a

balloon catheter with an optical fibre, wherein the SMP material exists in the first temporary shape in memory;

- ~~Inserting~~ inserting the stents ~~stent~~ placed in this way into the a desired position,
- ~~Heating~~ heating the stent by inserting a heated medium into the catheter or introducing light of a suitable wavelength to obtain the second temporary shape in memory; and
- ~~Removing~~ removing the balloon catheter.

15. (Currently Amended) ~~Method~~ A method of removing an implanted stent, wherein the stent comprises an SMP material ~~with two shapes in the memory~~ a first memory shape and a second memory shape, comprising the following steps, preferably according to the implantation according to claim 13:

- ~~Inserting~~ inserting a balloon catheter into the implantation location,
- ~~Inserting~~ inserting a heat medium into the balloon catheter to accomplish one of the following: heat the stent or introducing and introduce light of a suitable wavelength;
- ~~Activating~~ activating the shape memory effect by one of the following: the heating or and the effect of light so that the stent is transferred from its ~~the~~ second temporary shape in memory into the a permanent shape; and
- ~~Removing~~ removing the balloon catheter, together with the stent.